

CLAIMS

1 1. A method of producing a gas discharge panel,
2 comprising:

3 an envelope forming step for forming an envelope
4 by providing over a first plate a second plate so that
5 the second plate faces a main surface of the first plate,
6 on which partition walls for partitioning light emitting
7 cells have been formed;

8 a sealing step for sealing the envelope with a
9 sealant along outer edges of the first and second plates;

10 an exhaust step for exhausting gas from the
11 envelope; and

12 a filling step for filling the envelope with a
13 discharge gas, wherein

14 the exhaust step includes:

15 a substep for evacuating the envelope;

16 a substep for filling the envelope with a
17 cleaning gas that includes as a constituent a gas that
18 substantially causes no impurity in the discharge gas;
19 and

20 a substep for re-evacuating the envelope.

1 2. A method of producing a gas discharge panel,
2 comprising:

3 an envelope forming step for forming an envelope

4 by providing over a first plate a second plate so that
5 the second plate faces a main surface of the first plate,
6 on which partition walls for partitioning light emitting
7 cells have been formed;

8 a sealing step for sealing the envelope with a
9 sealant along outer edges of the first and second plates;

10 an exhaust step for exhausting gas from the
11 envelope; and

12 a filling step for filling the envelope with a
13 discharge gas, wherein

14 the exhaust step includes:

15 a substep for evacuating the envelope; and

16 a substep for exhausting gas from the envelope
17 while a cleaning gas is circulated through the envelope,
18 the cleaning gas including as a constituent a gas that
19 substantially causes no impurity in the discharge gas.

1 3. The gas discharge panel producing method
2 according to Claim 1, wherein the sealant is disposed
3 between the first and second plates, the entire envelope
4 is heated at a temperature that is no lower than one of a
5 softening point and a melting point of the sealant while
6 a pressure in the envelope is set lower than a pressure
7 outside of the envelope, and the envelope is cooled at
8 the sealing step.

1 4. The gas discharge panel producing method
2 according to Claim 2, wherein the sealant is disposed
3 between the first and second plates, the entire envelope
4 is heated at a temperature that is no lower than one of a
5 softening point and a melting point of the sealant while
6 a pressure in the envelope is set lower than a pressure
7 outside of the envelope, and the envelope is cooled at
8 the sealing step.

1 5. The gas discharge panel producing method
2 according to Claim 1, wherein a step for inserting a
3 getter into a container that is linked to an internal
4 space of the envelope is included between the sealing
5 step and the exhaust step.

1 6. The gas discharge panel producing method
2 according to Claim 2, wherein a step for inserting a
3 getter into a container that is linked to an internal
4 space of the envelope is included between the sealing
5 step and the exhaust step.

1 7. The gas discharge panel producing method
2 according to Claim 3, wherein a step for inserting a
3 getter into a container that is linked to an internal
4 space of the envelope is included between the sealing
5 step and the exhaust step.

1 8. The gas discharge panel producing method
2 according to Claim 4, wherein a step for inserting a
3 getter into a container that is linked to an internal
4 space of the envelope is included between the sealing
5 step and the exhaust step.

1 9. The gas discharge panel producing method
2 according to Claim 1, wherein the entire envelope is
3 heated at a temperature that is no higher than one of a
4 softening point and a melting point of the sealant at the
5 exhaust step.

1 10. The gas discharge panel producing method
2 according to Claim 2, wherein the entire envelope is
3 heated at a temperature that is no higher than one of a
4 softening point and a melting point of the sealant at the
5 exhaust step.

1 11. The gas discharge panel producing method
2 according to Claim 3, wherein the entire envelope is
3 heated at a temperature that is no higher than one of the
4 softening point and the melting point of the sealant at
5 the exhaust step.

1 12. The gas discharge panel producing method

2 according to Claim 4, wherein the entire envelope is
3 heated at a temperature that is no higher than one of the
4 softening point and the melting point of the sealant at
5 the exhaust step.

1 13. The gas discharge panel producing method
2 according to Claim 5, wherein the entire envelope is
3 heated at a temperature that is no higher than one of a
4 softening point and a melting point of the sealant at the
5 exhaust step.

1 14. The gas discharge panel producing method
2 according to Claim 6, wherein the entire envelope is
3 heated at a temperature that is no higher than one of a
4 softening point and a melting point of the sealant at the
5 exhaust step.

1 15. The gas discharge panel producing method
2 according to Claim 7, wherein the entire envelope is
3 heated at a temperature that is no higher than one of the
4 softening point and the melting point of the sealant at
5 the exhaust step.

1 16. The gas discharge panel producing method
2 according to Claim 8, wherein the entire envelope is
3 heated at a temperature that is no higher than one of the

4 softening point and the melting point of the sealant at
5 the exhaust step.

1 17. The gas discharge panel producing method
2 according to Claim 3, wherein the entire envelope is
3 cooled to a temperature that is higher than room
4 temperature and no higher than one of the softening point
5 and the melting point of the sealant at the sealing step.

1 18. The gas discharge panel producing method
2 according to Claim 4, wherein the entire envelope is
3 cooled to a temperature that is higher than room
4 temperature and no higher than one of the softening point
5 and the melting point of the sealant at the sealing step.

1 19. The gas discharge panel producing method
2 according to Claim 11, wherein the entire envelope is
3 cooled to a temperature that is higher than room
4 temperature and no higher than one of the softening point
5 and the melting point of the sealant at the sealing step.

1 20. The gas discharge panel producing method
2 according to Claim 12, wherein the entire envelope is
3 cooled to a temperature that is higher than room
4 temperature and no higher than one of the softening point
5 and the melting point of the sealant at the sealing step.

1 21. The gas discharge panel producing method
2 according to Claim 1, wherein the sealing step includes:

3 a substep for disposing the sealant between the
4 first and second plates, and heating the entire envelope
5 to a temperature that is no lower than one of a softening
6 point and a melting point of the sealant while a dry gas
7 is circulated through the envelope; and

8 a substep for heating the entire envelope at a
9 temperature that is no lower than one of the softening
10 point and the melting point of the sealant while a
11 pressure in the envelope is set to be lower than a
12 pressure outside of the envelope, and cooling the
13 envelope.

1 22. The gas discharge panel producing method
2 according to Claim 2, wherein the sealing step includes:

3 a substep for disposing the sealant between the
4 first and second plates, and heating the entire envelope
5 to a temperature that is no lower than one of a softening
6 point and a melting point of the sealant while a dry gas
7 is circulated through the envelope; and

8 a substep for heating the entire envelope at a
9 temperature that is no lower than one of the softening
10 point and the melting point of the sealant while a
11 pressure in the envelope is set to be lower than a

12 pressure outside of the envelope, and cooling the
13 envelope.

1 23. The gas discharge panel producing method
2 according to Claim 21, wherein a step for inserting a
3 getter into a container that is linked to an internal
4 space of the envelope is included between the sealing
5 step and the exhaust step.

1 24. The gas discharge panel producing method
2 according to Claim 22, wherein a step for inserting a
3 getter into a container that is linked to an internal
4 space of the envelope is included between the sealing
5 step and the exhaust step.

1 25. The gas discharge panel producing method
2 according to Claim 21, wherein the entire envelope is
3 heated at a temperature that is no higher than one of the
4 softening point and the melting point of the sealant at
5 the exhaust step.

1 26. The gas discharge panel producing method
2 according to Claim 22, wherein the entire envelope is
3 heated at a temperature that is no higher than one of the
4 softening point and the melting point of the sealant at
5 the exhaust step.

1 27. The gas discharge panel producing method
2 according to Claim 23, wherein the entire envelope is
3 heated at a temperature that is no higher than one of the
4 softening point and the melting point of the sealant at
5 the exhaust step.

1 28. The gas discharge panel producing method
2 according to Claim 24, wherein the entire envelope is
3 heated at a temperature that is no higher than one of the
4 softening point and the melting point of the sealant at
5 the exhaust step.

1 29. The gas discharge panel producing method
2 according to Claim 21, wherein the entire envelope is
3 cooled to a temperature that is higher than a room
4 temperature and no higher than one of the softening point
5 and the melting point of the sealant at the sealing step.

1 30. The gas discharge panel producing method
2 according to Claim 22, wherein the entire envelope is
3 cooled to a temperature that is higher than a room
4 temperature and no higher than one of the softening point
5 and the melting point of the sealant at the sealing step.

1 31. The gas discharge panel producing method

2 according to Claim 25, wherein the entire envelope is
3 cooled to a temperature that is higher than a room
4 temperature and no higher than one of the softening point
5 and the melting point of the sealant at the sealing step.

1 32. The gas discharge panel producing method
2 according to Claim 26, wherein the entire envelope is
3 cooled to a temperature that is higher than a room
4 temperature and no higher than one of the softening point
5 and the melting point of the sealant at the sealing step.

1 33. The gas discharge panel producing method
2 according to Claim 1, wherein the sealant is disposed
3 between the first and second plates, sealed edges of the
4 first and second plates are heated at a temperature that
5 is no lower than one of a softening point and a melting
6 point of the sealant while a pressure in the envelope is
7 set lower than a pressure outside of the envelope, and
8 the envelope is cooled at the sealing step.

1 34. The gas discharge panel producing method
2 according to Claim 2, wherein the sealant is disposed
3 between the first and second plates, sealed edges of the
4 first and second plates are heated at a temperature that
5 is no lower than one of a softening point and a melting
6 point of the sealant while a pressure in the envelope is

7 set lower than a pressure outside of the envelope, and
8 the envelope is cooled at the sealing step.

1 35. The gas discharge panel producing method
2 according to Claim 33, wherein a step for inserting a
3 getter into a container that is linked to an internal
4 space of the envelope is included between the sealing
5 step and the exhaust step.

1 36. The gas discharge panel producing method
2 according to Claim 34, wherein a step for inserting a
3 getter into a container that is linked to an internal
4 space of the envelope is included between the sealing
5 step and the exhaust step.

1 37. The gas discharge panel producing method
2 according to Claim 33, wherein the entire envelope is
3 heated at a temperature that is no higher than one of the
4 softening point and the melting point of the sealant at
5 the exhaust step.

1 38. The gas discharge panel producing method
2 according to Claim 34, wherein the entire envelope is
3 heated at a temperature that is no higher than one of the
4 softening point and the melting point of the sealant at
5 the exhaust step.

1 39. The gas discharge panel producing method
2 according to Claim 35, wherein the entire envelope is
3 heated at a temperature that is no higher than one of the
4 softening point and the melting point of the sealant at
5 the exhaust step.

1 40. The gas discharge panel producing method
2 according to Claim 36, wherein the entire envelope is
3 heated at a temperature that is no higher than one of the
4 softening point and the melting point of the sealant at
5 the exhaust step.

1 41. The gas discharge panel producing method
2 according to ^{Claim 1} ~~one of Claims 1 to 40~~, wherein the cleaning
3 gas is the discharge gas.

1 42. The gas discharge panel producing method
2 according to Claim 41, wherein the discharge gas is a
3 noble gas.

1 43. The gas discharge panel producing method
2 according to Claim 42, wherein the noble gas includes at
3 least one of helium, neon, argon, and xenon.

1 44. The gas discharge panel producing method

claim 1

a 2 according to ~~one of Claims 1 to 40~~, wherein the light
3 emitting cells are formed by positioning a first group of
4 parallel electrodes on the first plate orthogonally to a
5 second group of parallel electrodes on the second plate
6 with a distance between the first and second electrode
7 groups.

1 45. The gas discharge panel producing method
2 according to Claim 41, wherein the light emitting cells
3 are formed by positioning a first group of parallel
4 electrodes on the first plate orthogonally to a second
5 group of parallel electrodes on the second plate with a
6 distance between the first and second electrode groups.

1 46. The gas discharge panel producing method
2 according to Claim 42, wherein the light emitting cells
3 are formed by intersecting a first group of electrodes
4 that have been disposed on the first plate in parallel
5 and a second group of electrodes that have been disposed
6 on the second plate in parallel with a distance between
7 the first and second groups.

1 47. The gas discharge panel producing method
2 according to Claim 43, wherein the light emitting cells
3 are formed by intersecting a first group of electrodes
4 that have been disposed on the first plate in parallel

5 and a second group of electrodes that have been disposed
6 on the second plate in parallel with a distance between
7 the first and second groups.

Add A 1